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**Plant Protection Section.**

*Chief of Section:* Professor Dr. GIULIO TRINCHIERI.

*Rédacteur:* Dr. NORBERT VON GESCHER.

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# INTERNATIONAL BULLETIN OF PLANT PROTECTION

## DISCOVERIES AND CURRENT EVENTS *

### Germany : Present State of 'Elm Disease' (1).

The epidemic disease caused by *Graphium Ulmi* Schwarz and known as elm disease ('Ulmensterben') has broken out again during the last two years, both in the parts of western Germany previously infected and also in several towns in the east ; large areas are however still free from the disease.

The disease takes a chronic or acute form according to whether the conducting vessels are partly or wholly attacked ; this fact does not prove that there are two forms of the disease distinguished by differences in the causal agent, such as differences of virulence in the different strains of the fungus, for example, but is explained by new observations and the following experimental results.

In certain elms belonging to species usually susceptible to the disease differences in degree of susceptibility or resistance may be observed. Thus, for instance, certain 2- or 3-year-old plants of *Ulmus campestris* and *U. americana* grown from seed succombed during the first year after they had been artificially infected, while other individuals of the same species suffered less and some even appeared to remain healthy.

By eliminating doubtful individuals during the following years by renewed infection, and by always ensuring regeneration or immunity of the remaining elms, it may be expected with some degree of certainty that the trees will have a genuine individual resistance. Every intermediate stage between this state of resistance and maximum susceptibility may be found. On the other hand there are species and varieties of elm which are completely or almost completely resistant to *Gr. Ulmi*, such as, *U. vegeta*, *U. scabra* var. *Dampieri* and other fastigiate varieties. The chances of finding in the mountains resistant elm seedlings are considerable. It is even to be hoped that sufficient resistant individuals will be found amongst the numerous possible species to be able to meet the soil and climatic requirements of the trees for avenues, parks, gardens, etc. This will be all the more possible if the resistant trees are vegetatively propagated, forming a homogeneous elm stock. Moreover, fully grown elms could be grafted with resistant scions so as to give shade more rapidly than would be the case with young trees specially planted. It has often been observed that infection extends from the top downwards — a frequent process in fungal penetration — the disease stopping at the level of the graft and consequently sparing the rootstock. Hence it will be interesting to observe how fully grown

* In this, as in the two next chapters, the countries are arranged in French alphabetical order.

(1) Communication from Dr. WOLLENWEBER, Councillor of State, transmitted by the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

elms will behave when their branches are grafted with shoots from resistant trees and what reaction such treatment will have on the susceptible trunk.

The fact than in 1929 *Zelkowa Keaki* has been found highly susceptible to elm fungus seems to contradict the original idea that *Gr. Ulmi* is specific to the elm. If *Zelkowa* belongs to the family *Ulmaceae* at all it is to the sub-family *Celtidoideae*, which has a wingless drupe and a curved embryo, unlike the *Ulmoideae* which have a samara with a straight embryo.

The leaves of *Zelkowa* are like those of the elm and in spite of the differences mentioned it should not be forgotten that *Z. Keaki* was formerly known as *U. Keaki* Siebold. It has been suggested that *U. campestris* var. *Berardii* Simon-Louis is identical with *Z. carpinifolia*. But even if *Ulmus* and *Zelkowa* are regarded as two species of the same genus it must be acknowledged that they differ from each other more than do the most dissimilar of the true species of *Ulmus*.

The surprising fact then appears that although susceptibility to *Gr. Ulmi* extends not only to species differing in external characteristics but even to species beyond the limits of the genus *Ulmus*, within the genus isolated resistant individuals may be found. The idea that the nettle tree, *Celtis*, another representative of the *Celtidoideae*, might be susceptible to infection by the elm fungus has not been verified. Artificial inoculation of *C. occidentalis* L. and *C. Tournefortii* Lam. with *Gr. Ulmi* has not been successful under conditions in which *Zelkowa* and elm trees would have been killed.

**Algeria : Swarms of Desert Locusts (*Schistocerca gregaria*) (1).**

On October 7, 1929 a swarm was reported over the palm plantation and post of Djanet.

On October 9, 11 and 13 locusts alighted in the Ouallem region (Adrar) and completely destroyed the garden. On the 11th two swarms alighted at Taourirt Reggen (Adrar) and caused considerable damage.

On the 22nd and 23rd large swarms were reported over the plantations and pastures in the Flatters region : serious damage.

On the 24th a swarm was reported at Béni Goummis (Abadla) flying in a northerly direction.

On the 25th there was a very large swarm over the post of Polignac flying west.

On the 26th locusts were reported in the vicinity of the post of Abadla. A large swarm coming from the south arrived in Oued Guir, region of the Abadla post, and caused much damage there on cultivated land. On the 28th the swarm reported on the 26th departed in a northerly direction.

On the 27th a swarm was reported at Fort Lallemant (Ouargla).

On the 28th large swarms were reported at Raselerg, 100 km. south of El-Goléa, and a swarm at Safiet Iniguel, 32 km. north-east of El-Goléa. The swarm reported at Caïdat Sakit (Timimoun) from the south set off in an easterly direction.

**Western Australia : Diseases Recorded for the First Time (2).**

1. Rust on Subterranean Clover (apparently *Uromyces* sp.).
2. False club root of Swedes (*?Olpidium radicicolum* de Wildeman).

(1) Communication from the General Government of Algeria to the International Institute of Agriculture.

(2) Communication from the official correspondent of the Institute, Mr. H. A. Pittman, B. Sc. Agric., Plant Pathologist, Department of Agriculture, Perth, Western Australia.

3. Dry rot of Swedes (? *Phoma lingam*).
4. Mosaic on Garden Nasturtium, *Tropaeolum* sp. (Virus).
5. Brunissure of grape vines.
6. Eelworms (*Heterodera radicicola*) on roots of native boronia, *Boronia megastigma*.
7. Eelworms on roots of *Ceinfugosia hakeifolia*.
8. Eelworms on roots of garden *Cassia*.
9. Nutritional malformation of couch grass, *Cynodon dactylon*.

**Colombia (Republic of) : Crop Diseases and Pests** (1).

During 1927 and 1928 I undertook investigations on the diseases and pests of plants cultivated in Antioquia.

On the coffee plant the most important fungus is the 'llaga' (*Rosellinia* sp.). The name 'llaga' also includes a soft green rot of the base of the stem ; a *Fusarium* has been isolated from this rot.

*Cercospora coffeicola* causes the berries to adhere to one another and produces a leaf spot.

*Omphalia flavida* is the commonest fungus in the plantations and causes round, chocolate-coloured spots on both surfaces of the leaves. These spots fall away leaving holes in the leaves.

This fungus attacks the following plants in addition to coffee :— *Borreria laevis, Galinsoga caracasana* and *Saracha Jaltomata*. It is very abundant under heavy shade and the only economic method of control is by a careful distribution of shade, without however damaging the crop.

A species of *Capnodium*, probably new, forms a black crust on the leaves of coffee, Java plum (*Jambosa Jambos*) and *Inga*.

In addition to the fungi mentioned a parasitic flowering plant (*Phoradendron* sp.) attacks coffee and causes considerable losses and even, in some cases, the death of the plant.

On the sugar cane a bud rot has been observed, the cause of which has not yet been determined. *Thielaviopsis paradoxa* is found in certain cases of sugar cane root rot. The most widely spread disease of cane is gummosis (*Bacterium vascularum*).

About 99 % of the tobacco in Antioquia is infected with 'matizado', a disease of which the cause is not yet known.

The leaves of the avocado (alligator pear) are attacked by the fungus *Phyllachora gratissima* which in some cases causes total defoliation of the tree.

The new parasitic fungi observed in this region are *Alternaria Brassicae*, on the cauliflower (*Brassica oleracea*) ; *Mycosphaerella brassicicola*, also on cauliflower ; *Cercospora longissima*, on lettuce (*Lactuca sativa*) ; *Cladosporium fulvum*, on tomato (*Lycopersicum esculentum*) ; *Colletotrichum Lindemuthianum* on the kidney bean (*Phaseolus vulgaris*) ; *Coll. gloesporioides*, on the mango (*Mangifera indica*).

The coffee ant is one of the most destructive pests of this shrub in Antioquia ; it tunnels galleries in the stem and roots. This ant does not build nests but reaches the plants by underground passages. It has been identified as *Acropygia goeldii*. *Leucoptera coffeella* causes heavy losses in places only slightly shaded ;

(1) Communication from the official correspondent of the Institute, Mr. Rafael A. Toro, Phytopathologist, Departamento Nacional de Agricultura del Ministerio de Industrias, Bogotá (República de Colombia).

highly satisfactory results have been obtained in its control by spraying with ' Black-leaf 40 '. *Pseudococcus citri* damages the roots of coffee very slightly.

The worst pest of the orange tree is the ' hormiga arriera ' (*Atta* sp.). It is a leaf-cutter and completely defoliates the tree.This insect attacks all other plants as well as the orange. Orange trees are damaged also by the scale insects *Saissetia hemisphaerica, S. oleae, Lepidosaphes beckii* and *Chrysomphalus aurantii.* The most serious of these is *L. beckii* which may be exterminated by means of spraying with suspensions of spores of the fungi *Aschersonia turbinata* and *Sphaerostilbe auranticola.* The ' hormiga brava ' (*Selenopsis geminata*) is usually found on orange trees in association with the aphis *Toxoptera aurantii.*

Among the insects on associated crops the following are observed :— *Pieris* sp., *Diaphania hyalinata, Pachyzancha bipunctalis, Phlegethontius carolina, Corythaica monacha, Epitrix cucumeris.*

On maize two caterpillars are frequently found of which one (*Laphygma frugiperda*) attacks the leaves and the other (*Chloridea obsoleta*) the cobs.

The two most important diseases of the coconut palm observed by me in the island of San Andrés are the ' marchitez amarilla ', probably of physiological origin, and the ' hoja pequeña '. The former is abundant in places which have an inadequate water supply and a certain number of the roots of infected palms are killed. An investigation of the possible cause of the death of these roots revealed the presence of species of *Rhizoctonia.* The ' hoja pequeña ' is abundant along roads and on isolated palms. The disease is characterised by a considerable reduction in the size of the leaves and in their number. No pathogenetic causal organism has yet been discovered. *Capnodium* sp. and *Pestalozzia Palmarum* are abundant on withered leaves.

A study of the diseases of the cacao tree in the region of Zarzal Caldas brought to light three important fungi. A species of *Monilia* (probably the same as that in Equador), *Lasiodiplodia Theobromae* and *Colletotrichum* sp. Also in Antioquia the fungus *Phytophthora Faberi* causes a rot of the cacao pods.

**Belgian Congo : Pests and Diseases of *Coffea arabica* in the East** (1).

1. — Insects. Various aphides, scale insects and ' borers '. *Cemiostoma coffeella* is fairly frequent. The ' ver gris ' occurs, specially in the nursery plantations where it causes considerable damage. Two cases of Nematoda were found. *Stephanoderes hampei* is reported only from two widely separated places.

2. — Cryptogams. *Diplodia Theobromae* was found on a plant growing under adverse conditions. Two isolated cases of *Fomes lignosus* occurred causing a root rot. The following leaf spot fungi were recorded :— *Cercospora coffeicola, Colletotrichum coffeanum* and *Phyllosticta coffeicola. Hemileia vastatrix* was frequent at altitudes below 1000 m., but from 1500 m. upwards it gradually loses its virulence until at 2000 m. it is practically non-existant.

3. — Physiological Disease. ' Die back ' occurs particularly in Ituri. It is caused mainly by a physiological exhaustion due to over-production and affects principally the branches in the centre of the tree. The only remedy where it occurs is to avoid by pruning, cutting off the first flowers, manuring, etc., a low physiological condition of the tree.

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(1) Communication from the official correspondent of the Institute, Dr. P. Staner, Director of the Mycological Laboratory, Eala, Belgian Congo.

**Madagascar: Rats. A Menace to Coffee Plants** (1).

In most of the provinces of the Island the rainy season of 1928-1929 has been marked by an abnormal increase of rats. Migrations have been reported along our East coast in the neighbourhood of the forest zone, especially in the province of Maroantsetra, in the region of Nandihizana where the largest bands have been seen. This exodus is due to the present meteorological conditions, the violent winter rains of 1928-1929 having caused the sudden swelling of the forest streams, which resulted in frequent floods and forced the rats to leave the forest which no longer afforded them a shelter.

In the province of Mananjary the rats have become more numerous in the plantations since 1928. The two cyclones which have swept over this island and the accompanying floods have driven the rats away from the wooded river banks, and they have taken refuge in the plantations, where they have caused damage, the extent of which varies according to the region. The coffee plants have suffered particularly and in a peculiar manner which does not seem to have been previously described by any writers interested in coffee plants.

The rodents climbed up into the coffee plant, the bark of the trunk and that of the largest branches was not attacked and the young berries have been untouched.

The rat instead has gnawed the bark and wood of the partially lignified young branches which should bear fruit the following year. These branches have never been completely bitten through ; the animal stopped after laying bare the medullary tissue. These branches were killed and became dry and blackened. Sometimes when not so deeply gnawed a healing tissue has been formed, partially closing the wound and the branch has not died. In the old plantations where the plants touch each other and cover the ground only the young branches at the top of the plant have been damaged, but on isolated coffee plants the lower branches have also been attacked.

The rodents were very numerous at the end of January and during the first fortnight of February ; in May they had disappeared. The plantations at low altitudes were damaged but those at about 600 metres were unharmed.

It is difficult to say from what motives the rats committed such depredations. Possibly they were in search of the food supplied by the soft tissues of the young branches. A planter reported that the digestive canal of captured rats contained gnawed material from these branches. This does not prove in any way that the rodents extract nourishment from such material. It has been impossible to detect any characteristic flavour in the branches which were attacked. It may be conjectured that the females in gestation, driven from their haunts by the floods, were endeavouring to build nests on the tops of the plants. The branches, however, are never completely detached and very few nests have been found.

The damage does not greatly affect the full grown plants, but is very serious in the case of the younger ones.

An attempt must be made to exterminate these rodents, which belong to the species *Mus decumanus* (Brown Rat) and were introduced into the Island some time ago. It will be very difficult to effect this extermination in the eastern part of Madagascar. There the forest affords an impenetrable shelter for the rodents

(1) Communication from the official correspondent of the Institute, Mr. Edm. François, Chief in charge of the Agricultural Service to the General Government of Madagascar and Dependencies, Tananarive.

where it will be practically impossible to carry out destructive measures. At present therefore, activities must be confined to keeping the rats away from the plantations and killing those which are already there. The first of these measures seems preferable and the colonists are strongly advised to adopt it. Each coffee plantation should keep several dogs and these will be trained to scour the plantations thoroughly throughout both the day and night. It might be simpler to introduce into the plantations reptiles indigenous to the country. The very presence of our small boas (' Menarana ', ' Mandotra ', etc.) causes the flight of rodents and of most animals, but it seems impossible to prevent these reptiles going beyond the plantations. It would also be an improvement to destroy as far as possible the cover afforded by other plants which are often to be found in the middle of the plantations. These uncultivated parts are covered with bushes and tall plants which serve as a refuge for all parasitic animals. Above all, the steep river banks crossing the plantations should be cleared as the rats are especially fond of the banks of rivers which bring down debris, fruit and seeds from the forest.

The destruction of these animals can only be carried out by means of poisons (red squill, arsenic acid, barium carbonate). The colonials object to using poisons which kill poultry and dogs as well as rats. There is, besides, a risk of the careless and slovenly natives poisoning themselves while preparing the baits.

Besides this our Pasteur Institute does not encourage the use of the virus Danysz which loses its strength very quickly. It is therefore very difficult for us to organise a campaign. The extinction of the rat in Madagascar, which is a large country and very sparsely populated, can only be effected by means of combined action and with every resource at our disposal. This campaign will be very costly but the complete destruction of the rat, which is one of the worst enemies of man, is absolutely necessary.

**Morocco : Swarm of Desert Locusts (*Schistocerca gregaria*)** (1).

A swarm was reported on 9 October 1929 at Gueffifat, 25 km. to the south-west of Bou Denib, and at Brahim and at Lefranc, 100 km. to the south of Tiznit.

**Persia : *Schistocerca gregaria*** (2).

An unprecedented invasion of *Schistocerca gregaria* occurred in the spring of 1928 and regions which had never before suffered from attacks of this locust were invaded.

From the information collected it appears that the invasion began in the south (province of Fars) then reached the Khoraçan and from there extended over the whole southern slope of the Elbourz, covering thus $^3/_5$ of the territory.

It is, however, certain that *Schist. gregaria* is not indigenous to Persia, but it has not yet been definitely determined from which region it comes.

Control measures were organised and actively carried on ; from the second moult the following formula was used with satisfactory results :—

| | | |
|---|---|---|
| Barley bran . . . . . | 16.500 kg. | (5.5 ' man ') |
| Sawdust . . . . . | 3 » | (1 » |

(1) Communication from the General Governement of Algeria to the International Institute of Agriculture.

(2) Communication from the official correspondent of the Institute, Mr. Ahmed H. Adle, Department of Agriculture, Teheran, Persia.

| | | | |
|---|---|---|---|
| Water | 7.5 | » | (2.5 'man') |
| Sodium arsenite | 0.675 | » | (9 'sirs') |

Several schemes are in preparation for the organisation of an effective control on a large scale and will shortly be submitted for the approval of Parliament.

**Turkey: *Eurygaster integriceps*** (1).

An entomological station under the direction of Dr. ZWÖLFER has been established at Adana to study the biology of this pest.

The information collected and investigations carried out during last season have gone some way towards clearing up and establishing the following points:—

(1) the place of hibernation of the adult bugs; (2) the resistant varieties of wheat; (3) the natural enemies; (4) the control methods for checking the ravages of the insect.

The adults hibernate on the slopes of the Taurus in the regions of Mersina, Adana, Marach and Ayintap. They are found at altitudes varying from 600 to 1800 m. In the wooded regions 2-18 per cu. m. may be counted on the ground under the trees. The cultivation of two indigenous varieties of wheat, in particular Cyprus wheat, is recommended because of their early maturity.

It has been shown that in certain districts a natural enemy (*Teleas*) destroys as much as 95 % of the eggs of *Eurygaster*. An insect (*Phasia* sp.?) which is found mainly in the Marach region attacks *Eurygaster* in its larval stage, but does not appear to destroy more than 10 %.

It has not yet been possible to indicate an effective method of scientific control of *Eurygaster*. Seeing that it is impossible to deal with it during hibernation it is recommended to destroy the winged insects and to restrict the cultivation of wheat in the area liable to be attacked, giving preference to early varieties of wheat and to barley.

Particular attention is drawn to the fact that in certain years *Eurygaster* multiplies rapidly in the regions of Adana, Marach, etc., whereas it is found in only isolated cases in other parts of Turkey, such as Adrianople, Brussa, etc. The Adana entomological station will endeavour to throw light upon this point during next season. It will also make the necessary arrangements for beginning the control of *Eurygaster* by means of its natural enemy, *Teleas*.

## VARIOUS QUESTIONS

### *Data and Information on Damage caused to Cultivated Crops by the Cold of the Winter 1928-1929* *

**Scotland (Orkney Islands)** (2). — During last winter there was no special damage done by frost compared with former years. These Islands have a comparatively mild climate during winter and severe frosts are practically unknown. Snow does not lie for any length of time.

* See this *Bulletin*, Year III, 1929, Nos. 8, 9, 10, 11 and 12.

(1) Communication from the official correspondent of the Institute, Mr. SUREYA, Councillor of State, Angora.

(2) Communication from Mr. H. H. CORNER, B. Sc. (Agr.), Country Organiser, North of Scotland College of Agriculture, Kirkwall, Orkney Islands, Scotland, to the International Institute of Agriculture.

Mr. J. DAVIDSON who is the local weather observer has given me the following figures relating to the occurrence of frost during winter 1928-29.

Average temperature for each month (on grass).

| | | |
|---|---|---|
| 1928. | | |
| October | 40°.2 | Fahrenheit. |
| November | 37°.8 | » |
| December | 35°.0 | » |
| 1929. | | |
| January | 30°.2 | » |
| February | 30°.8 | » |
| March | 36°.1 | » |

Minimum temperature recorded during the month (on grass).

| | | |
|---|---|---|
| 1928. | | |
| October | 30° | Fahrenheit |
| November | 25° | » |
| December | 29° | » |
| 1929. | | |
| January | 17° | » |
| February | 21° | » |
| March | 26° | » |
| April | 19° | » |

From these figures it will be seen that the winter was not exceptionally severe From my own knowledge of the agriculture of this district no special damage can be recorded.

**Norway** (1). — The winter 1928-29 was not particularly severe in this country. Certain winter damage especially to fruit trees and bushes and to ornamental woody plants occurs every winter in a number of localities, and such was also the case last winter, but nothing very extraordinary was observed. Less hardy ornamental woody plants suffered badly in the south eastern part of the country, as even in the winter before, but this was probably more due to drying out in the early spring than to frost damage. Fruit trees, especially plums, suffered somewhat, but not very seriously, especially in the southern part of the country ; in the western part Laerdal was characterized by serious winter damage to fruit trees, probably caused by root frost (root frost is rather common in that district because of the small amount of snow usually occurring there). In Trøndelag the red clover mostly disappeared during the winter, but that may happen from time to time in all parts of the country.

**Seychelles** (2). — The cold of the winter 1928-29 was not experienced in this Colony.

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(1) Communication from the official correspondent of the Institute, Mr. Ivar JØRSTAD, Government Mycologist, Botanical Museum, Oslo, Norway.

(2) Communication from the official correspondent of the Institute, Mr. P. R. DUPONT, Director of Agriculture, Department of Agriculture, Victoria, Seychelles.

## LEGISLATIVE AND ADMINISTRATIVE MEASURES

**Austria.** — By Ordinance No. 206 of 15 June 1929 the Federal Minister of Finance in agreement with the Federal Minister of Agriculture and Forests, repeals Ordinance No. 56 of 26 January 1929 (see this *Bulletin*, Year III, 1929, No. 3, p. 36) and provides as follows :—

§ 1. — The importation and transit of potatoes in the fresh state, tomatoes and aubergines coming from France into or through Federal territory are not permitted unless the consignment is accompanied by a certificate issued by the Phytopathological Inspection of France stating that the consignment has been examined and found free from Colorado beetle (' Coloradokäfer ', *Leptinotarsa decemlineata*), and that the products have been grown in a Commune situated outside the protection zones established in France against the insect and that it does not now exist and never has been observed within a radius of 40 km. round the Commune.

§ 2. — Consignments specified in § 1 coming from countries or islands of Southern Europe or North Africa, after passage through and re-consignment from France will not be admitted for importation or for transit through Federal territory unless they have entered France by the ports of Marseille, Cette or Port Vendres or by the frontier posts of Port Bou, Bourg Madame, Puigcerdá or Camfranc, for re-consignment to or through Austria, and are accompanied by an official certificate stating that the products were not grown in France.

§ 3. — The restriction contained in §§ 1 and 2 do not apply to consignments of the dried products or of substances such as dried potatoes, potato starch, preserved tomatoes, etc.

§ 4. — The importation and transit in or through Federal territory of skins and other waste of the products enumerated in § 1 and coming from France, also bags, packing, cases, leaves and other materials which have served to pack or to preserve such products are prohibited.

§ 5. — Consignments to which the restrictions of §§ 1 and 2 are applicable which shall arrive at the frontier without being accompanied by certificates or with inadequate certificates will not be admitted for transport to the interior of Federal territory and will at the option of the responsible official be either returned or destroyed. (*Bundesgesetzblatt für die Republik Österreich*, Wien, 28. Juni 1929, Jahrg. 1929, 47. Stück, S. 833).

**Italy.** — In consequence of the presence of Grape Phylloxera [*Phylloxera vastatrix*] in the Commune of Sommariva Bosco, in the province of Cuneo, by Ministerial Decree of 26 October 1929 the regulations contained in Art. 6 of the Law No. 94 of 3 January 1929 (cf. this *Bulletin*, Year III, 1929, No. 2, pp. 23-24) have been extended to the territory of the Commune. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 2 novembre 1929, anno 70°, n. 255, p. 4915).

*** By Ministerial Decrees of 31 October 1929, the following Communes are declared infected with Grape Phylloxera [*Phylloxera vastatrix*] : Castiglione in Teverina (province of Viterbo), Lequio Berria, Saliceto, Castiglione, Falletto (province of Cuneo), Cumiana, Pacetto (province of Turin), Muro Lucano (province of Potenza). (*Gazzetta ufficiale del Regno d'Italia*, Roma, 13 novembre 1929, anno 70°, n. 264, p. 5083).

*** By Ministerial Decree of 31 October 1929 the Commune of Amatrice in the province of Campobasso has been declared infected by Grape Phylloxera [*Phylloxera vastatrix*]. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 8 novembre 1929, anno 70°, n° 260, p. 5011).

*** The Ministerial Decree of 25 November 1929 which establishes the exceptions to the special technical regulations for the exportation of agrumes during the 1929-30 season provides *inter alia* that frost-affected oranges may not be exported. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 27 novembre 1929, anno 70°, n. 276, p. 5316).

*** By Ministerial Decree of 2 December 1929 the Commune of Tagliole in the province of Alessandria has been declared infested with Grape Phylloxera. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 16 dicembre 1929, anno 70°, n. 292, p. 5605).

*** The ' Camera Agrumaria ' in Messina has established in the Commune of Santa Teresa di Riva an Observatory for the study of the ' mal secco ' of lemons (cf. this *Bulletin*, Year III, 1929, No. 7, p. 104) and its control. The Royal Station of Plant Pathology in Rome has undertaken the directorship.

**Morocco.** — Sanitary formalities to which plant products are submitted on importation into or transit through Morocco (New edition and modifications of the text published in this *Bulletin*, Year III, 1929, No. 8, pp. 124-125): — Plants, plant parts, seeds, fruits, vegetables, plant debris or dried fruits as well as the packings used or having been used for the transport of these products are, on admission to the French zone of the Sherifian rule, submitted to a sanitary inspection and if necessary to fumigation. (' Dahir ' of 20 September 1927 in *Bulletin officiel*, 13 March 1928).

Since the above operations can be carried out only at the ports of Casablanca, Kénitra and at the frontier post of Oudjda, the importation of the above products can take place only at these places. (Decree of the General Director of Agriculture, Commerce and Colonisation, dated 1st March 1928 in *Bulletin officiel*, 13 March 1928).

The following plant products are however exempt from the regulations indicated: cereals, leguminous foods, rough and worked timber, barks, cattle cakes, straw, hay, bran, and meals (Decrees of the General Director of Agriculture, Commerce and Colonisation, dated 1st March 1928 and 25 May 1928 in *Bulletin officiel*, 13 March 1928 and 12 June 1928).

Plants and plant parts, other than seeds, intended for propagation must be accompanied by a certificate of sanitary inspection issued by the competent services of the country of origin. (Decrees of the General Director of Agriculture, Commerce and Colonisation, dated 1st March 1928 and 3 January 1929 in *Bulletin officiel*, 13 March 1928 and 22 January 1929).

Potatoes are on admission submitted to sanitary inspection and if necessary to fumigation. Shipments of not less than 20 quintals may be imported by the ports of Safi, Mazagan, Rabat, or Mogador, in addition to those already indicated.

In addition potatoes must be consigned in new packing materials. Shipments of potatoes must be accompanied by a certificate of sanitary inspection stating that they originate from crops situated upwards of 20 km. from fields infected by Colorado beetle (' doryphora ', *Leptinotarsa decemlineata*) or by wart disease (' gale noire ' or ' maladie verruqueuse ', *Synchytrium endobioticum*). With regard to the latter disease the distance referred to is reduced to 5 km. when

the certificate of sanitary inspection accompanying the shipments states that the potatoes have been inspected by officials of the Plant Protection Service of the exporting country, such country being free from infection by *Synchytrium endobioticum* (Schilb.) Perc. This document must, moreover, specify the varieties to which the potatoes belong. (Decrees of the General Director of Agriculture, Commerce and Colonisation, dated 25 May and 9 November 1928 and 15 June 1929 in *Bulletin officiel*, 12 June and 13 November 1928 and 2 July 1929).

Importation of cotton plants, the woody parts, seeds and bolls of cotton, and of unginned cotton is prohibited. (Decree ' viziriel ' of 20 September 1928 in *Bulletin officiel*, 13 March 1928).

Every package containing plants which have to be submitted to sanitary inspection must bear a label on which is inscribed the following indications : name and Christian names of the sender, the locality, department or province of the country of origin of the contents, the nature, variety and quantity of the contents of each package, the name and address of the consignee, and the mark and number. (Ministère de l'Agriculture, Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 1er octobre 1929, nos 18-19, p. 270).

**New Zealand.** — By special order made by the Amuri County Council on the 2nd August 1929 and published by the Minister of Agriculture (Notice No. Ag. 2847) on the 29th August 1929, the Californian thistle (*Cnicus arvensis*) is declared not to be a noxious weed in the County of Amuri. (*The New Zealand Gazette*, Wellington, September 5, 1929, Numb. 61, p. 2423).

*** By special order made by the Rotorua Borough Council on the 7th August 1929 and published by the Minister of Agriculture (Notice No. Ag. 2850) on the 31st August 1929, broom (*Cytisus scoparius*) and gorse (*Ulex europacus*) are declared to be noxious weeds in the Borough of Rotorua. (*Ibid.*, p. 2423).

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